

WHAT IS CLAIMED IS:

1. An antimicrobial composite comprising a first, liquid-permeable layer and a second layer arranged on the first layer, wherein an antimicrobial metal in elemental form is present between the first and second layers and substantially no antimicrobial metal in elemental form is present on exterior surfaces of the composite.
2. The composite of claim 1, wherein the first layer comprises a foramenous material.
3. The composite of claim 1, wherein the first layer comprises at least one of a hole and a mesh structure.
4. The composite of claim 2, wherein the first layer comprises at least one of a perforated film and a mesh.
5. The composite of claim 1, wherein the first layer comprises an organic polymer.
6. The composite of claim 5, wherein the organic polymer comprises a polyolefin.
7. The composite of claim 6, wherein the polyolefin comprises at least one of polyethylene and polypropylene.
8. The composite of claim 1, wherein the first layer comprises a polyethylene mesh.
9. The composite of claim 1, wherein the first layer comprises openings having a size of from about 250 μm to about 1400 μm .
10. The composite of claim 8, wherein the polyethylene mesh comprises openings having a size of from about 400 μm to about 700 μm .

11. The composite of claim 10, wherein the openings have a substantially triangular shape.
12. The composite of claim 9, wherein the openings provide an open area of from about 15 % to about 60 % of the surface area of the first layer.
13. The composite of claim 2, wherein the first layer has a thickness of from about 0.02 mm to about 0.8 mm.
14. The composite of claim 3, wherein the first layer has a thickness of from about 0.05 mm to about 0.5 mm.
15. The composite of claim 1, wherein the second layer is one of a liquid-permeable layer and a liquid-absorbing layer.
16. The composite of claim 4, wherein the second layer comprises at least one of a perforated film and a mesh.
17. The composite of claim 2, wherein the second layer comprises an organic polymer.
18. The composite of claim 17, wherein the organic polymer comprises a polyolefin.
19. The composite of claim 4, wherein the second layer comprises a polyethylene mesh.
20. The composite of claim 1, wherein the second layer has a thickness of from about 0.02 mm to about 2.5 mm.
21. The composite of claim 15, wherein the second layer is a liquid-absorbing layer.

22. The composite of claim 21, wherein the liquid-absorbing layer has a liquid-absorbing capacity of from about 300 g/m^2 to about 2000 g/m^2 .
23. The composite of claim 22, wherein the liquid-absorbing capacity is from about 400 g/m^2 to about 1000 g/m^2 .
24. The composite of claim 21, wherein the second layer comprises a textile sheet.
25. The composite of claim 24, wherein the textile sheet comprises at least one of a nonwoven, a fleece, a fabric, a knit and a felt.
26. The composite of claim 21, wherein the second layer comprises at least one of fibers and yarns.
27. The composite of claim 25, wherein the second layer comprises at least one of viscose, polyolefin and polyester.
28. The composite of claim 27, wherein the polyolefin comprises at least one of polyethylene and polypropylene.
29. The composite of claim 21, wherein the second layer has a thickness of from about 0.3 mm to about 2.4 mm.
30. The composite of claim 24, wherein the second layer has a thickness of from about 0.5 mm to about 1.4 mm.
31. The composite of claim 21, wherein the second layer has an area weight of from about 80 g/m^2 to about 200 g/m^2 .
32. The composite of claim 31, wherein the second layer comprises a superabsorber.

33. The composite of claim 32, wherein the superabsorber comprises a polymer having recurring units derived from acrylic acid and derivatives thereof.
34. The composite of claim 32, wherein the superabsorber is present in an amount of from about 0.01 % to about 40 % by weight, based on the second layer.
35. The composite of claim 1, wherein the antimicrobial metal comprises at least one of Ag, Au, Pd, Pt, Cu, Ir, Zn, Sn, Sb, Bi and alloys comprising one or more of these metals.
36. The composite of claim 2, wherein the antimicrobial metal comprises Ag and alloys thereof.
37. The composite of claim 1, wherein the antimicrobial metal is provided as a coating on at least one of the surfaces of the first and second layers.
38. The composite of claim 1, wherein the antimicrobial metal is present as a layer which comprises the antimicrobial metal and is arranged between the first and second layers.
39. The composite of claim 1, wherein the composite has a sheet-like structure.
40. The composite of claim 39, wherein the antimicrobial metal is present in an amount of from about 1 mg/m² to about 1 g/m².
41. The composite of claim 40, wherein the antimicrobial metal comprises at least one of Ag, Cu, Zn and an alloy of one or more of these metals.
42. The composite of claim 41, wherein the antimicrobial metal comprises silver and is present in an amount of from about 10 mg/m² to about 600 mg/m².

43. The composite of claim 42, wherein the silver is present in an amount of from about 50 mg/m² to about 450 mg/m².

44. The composite of claim 43, wherein the silver is present in an amount of from about 60 mg/m² to about 80 mg/m².

45. The composite of claim 3, wherein the first layer has a silver coating on a surface thereof which faces the second layer.

46. The composite of claim 3, wherein the second layer has a silver coating on a surface thereof which faces the first layer.

47. The composite of claim 45, wherein an intermediate layer is arranged between the silver coating and the first layer.

48. The composite of claim 47, wherein the intermediate layer comprises aluminum.

49. The composite of claim 1, wherein the first layer is coated with aluminum on one side thereof.

50. The composite of claim 1, wherein the composite has an area weight of from about 50 g/m² to about 300 g/m².

51. The composite of claim 42, wherein the composite has an area weight of from about 80 g/m² to about 160 g/m².

52. The composite of claim 1, wherein the composite has a thickness of from about 0.4 mm to about 2.5 mm.

53. The composite of claim 42, wherein the composite has a thickness of from about 0.5 mm to about 1.4 mm.

54. The composite of claim 1, wherein the composite shows a peeling strength of from about 0.05 N/cm to about 1.5 N/cm.

55. The composite of claim 51, wherein the composite shows a peeling strength of from about 0.15 N/cm to about 0.8 N/cm.

56. The composite of claim 1, wherein the composite shows a maximum tensile strength of from about 10 N/cm to about 40 N/cm.

57. The composite of claim 40, wherein the composite shows a 24-hour release of the antimicrobial metal of from about 0.05 mg/m² to about 3 mg/m².

58. The composite of claim 42, wherein the composite shows a 24-hour release of the silver of from about 0.1 mg/m² to about 2 mg/m².

59. The composite of claim 51, wherein the composite has a size of at least about 0.5 cm².

60. The composite of claim 50, wherein the composite has a size of not more than about 1 m².

61. An antimicrobial composite comprising a first, liquid-permeable layer and a second, liquid-absorbing layer on the first layer, wherein the first layer comprises a coating of elemental silver on a side which faces the second layer, the second layer comprises a nonwoven which comprises at least one of polyethylene, polypropylene, polyester and viscose, and wherein substantially no silver metal is present on exterior surfaces of the composite.

62. The composite of claim 61, wherein the first layer comprises a polyethylene mesh.

63. The composite of claim 61, wherein the first layer has a thickness of from about 0.05 mm to about 0.5 mm.

64. The composite of claim 63, wherein the second layer has a thickness of from about 0.5 mm to about 1.4 mm.

65. The composite of claim 62, wherein the second layer has a liquid-absorbing capacity of from about 400 g/m² to about 800 g/m².

66. The composite of claim 64, wherein the second layer has an area weight of from about 80 g/m² to about 150 g/m².

67. The composite of claim 61, wherein the silver is present in an amount of from about 50 mg/m² to about 450 mg/m².

68. The composite of claim 62, wherein an aluminum coating is arranged between the silver coating and the first layer.

69. The composite of claim 61, wherein the composite has an area weight of from about 80 g/m² to about 160 g/m².

70. The composite of claim 69, wherein the composite has a thickness of from about 0.4 mm to about 2.5 mm.

71. The composite of claim 69, wherein the composite shows a 24-hour release of silver of from about 0.1 mg/m² to about 2 mg/m².

72. A wound covering article comprising the composite of claim 1.

73. A wound covering article comprising the composite of claim 61.

74. A wound covering article comprising an antimicrobial composite which comprises a first, liquid-permeable layer and a second layer over the first layer, wherein an antimicrobial metal in elemental form is present between the first and second layers, the article further comprising a backing material arranged on the second layer.

75. The article of claim 74, wherein the backing material carries an adhesive on a surface which faces the second layer of the composite.

76. The article of claim 75, wherein the adhesive comprises one of a UV-curable acrylic adhesive and a rubber-based hot melt adhesive.

77. The article of claim 75, wherein the backing material comprises at least one of a polyester nonwoven and a polyethylene film.

78. The article of claim 72, which is one of a wound dressing, a compress, and a bandage.

79. A bandage which comprises the wound covering article of claim 77.

80. An antimicrobial skin care article which comprises the composite of claim 61.

81. A diaper which comprises the composite of claim 1.

82. A method of covering a wound, wherein the method comprises placing the wound covering article of claim 72 on the wound so that the first layer of the composite contacts the wound.

83. A method of covering a wound, wherein the method comprises placing the wound covering article of claim 73 on the wound so that the first layer of the composite contacts the wound.

84. A method of covering a wound, comprising providing a material which comprises a liquid-permeable layer and an antimicrobial metal in elemental form associated with this layer, and placing the material on the wound so that a surface of the liquid-permeable layer which is substantially free of the antimicrobial metal in elemental form contacts the wound.

85. The method of claim 84, wherein the liquid-permeable layer comprises a foramenous material.

86. The method of claim 85, wherein the liquid-permeable layer comprises at least one of a perforated film and a mesh.

87. The method of claim 85, wherein the liquid-permeable layer comprises a polyolefin mesh.

88. The method of claim 84, wherein the liquid-permeable layer comprises openings having a size of from about 250 μm to about 1400 μm .

89. The method of claim 88, wherein the liquid-permeable layer has thickness of from about 0.02 mm to about 0.8 mm.

90. The method of claim 84, wherein the antimicrobial metal comprises at least one of Ag, Au, Pd, Pt, Cu, Zn, and alloys comprising one or more of these metals.

91. The method of claim 85, wherein the antimicrobial metal comprises Ag and alloys thereof.

92. The method of claim 91, wherein the material shows a 24-hour release of silver of from about 0.05 mg/m^2 to about 3 mg/m^2 of material.

93. The method of claim 84, wherein the material further comprises a second layer which is arranged on a side of the liquid-permeable layer which has the antimicrobial metal thereon.

94. The method of claim 93, wherein the second layer is a liquid-absorbing layer.

95. A process of making an antimicrobial composite, the process comprising bonding together a first, liquid-permeable material and a second material which is at least one of liquid-permeable and liquid-absorbing, wherein at least one of the first and second materials is coated with an antimicrobial metal in elemental form on a surface thereof which faces the other material, and wherein substantially no antimicrobial metal in elemental form is present on an exterior surface of the resultant composite.

96. The process of claim 95, wherein the process comprises providing a liquid-permeable, sheet-like material, coating one side of the material with an antimicrobial metal in elemental form and bonding a liquid-absorbing material to a side of the liquid-permeable material which has the antimicrobial metal thereon.

97. The process of claim 96, wherein the liquid-permeable material comprises at least one of a hole and a mesh structure.

98. The process of claim 95, wherein the liquid-permeable material comprises at least one of a perforated film and a mesh.

99. The process of claim 96, wherein the antimicrobial metal comprises at least one of Ag, Au, Pd, Pt, Cu, Zn, and alloys comprising one or more of these metals.

100. The process of claim 99, wherein the liquid-permeable material is coated with the metal by a technique which comprises vapor deposition.

101. The process of claim 100, wherein the vapor deposition comprises at least one of vacuum evaporation, sputtering, ion-beam assisted deposition, ion plating and magnetron sputtering.

102. The process of claim 96, wherein the liquid-permeable material has an intermediate coating on a surface thereof which is to be coated with the antimicrobial metal.

103. The process of claim 102, wherein the intermediate coating comprises aluminum.

104. The process of claim 95, wherein the liquid-absorbing material and the liquid-permeable material are bonded to each other by at least one of lamination under at least one of heat and pressure, gluing, welding, and sewing.